

WHAT IS CLAIMED IS:

1. A vehicle headlamp apparatus comprising:

map information acquiring means for acquiring positional
information on one's own vehicle on a map and the environmental
information;

environmental condition detection means for detecting an
environmental condition relating to a traveling road on which
one's own vehicle is driven according image information or the
information acquired from a radar; and

light distribution control means for varying the light
distribution of a headlamp attached to a vehicle in accordance
with variation with the travel condition of one's own vehicle
and the environmental condition,

wherein said light distribution control means performs
light distribution control over the headlamp according to one
of information adopted with the priority given thereto out of
the information derived from said map information acquiring
means and the information detected by said environmental condition
detection means or according to information complemented with
both kinds of information above.

2. A vehicle headlamp apparatus as claimed in claim 1,
wherein a lane with respect to a road on which one's own vehicle
is being driven is detected and the detected result is judged
good or bad;

light distribution control over the headlamp is performed
by switching the information detected by said environmental

~~condition detection means and the information derived from said map information acquiring means according to the result thus judged.~~

5 3. A vehicle headlamp apparatus as claimed in claim 2,
wherein when the result of lane detection is judged to be good,
priority is given to the information detected by said environmental
condition detection means.

10 4. A vehicle headlamp apparatus as claimed in claim 1,
wherein when the first information acquired by said map information
acquiring means is different from the second information acquired
by said environmental condition detection means, the first
information is modified according to the second information
15 and the light distribution control over the headlamp is performed
by using the modified information.

5. A vehicle headlamp apparatus as claimed in claim 1, wherein
said environmental condition detection means comprises an imaging
unit for forming an image ahead of the vehicle; when detection
capability of said imaging unit is low, light distribution control
means performs light distribution control over the headlamp
according to the information derived from said map information
acquiring means.

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6. A vehicle headlamp apparatus as claimed in claim 2, wherein said environmental condition detection means comprises an imaging

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unit for forming an image ahead of the vehicle; when lane-mark detection capability of said imaging unit is low, light distribution control means performs light distribution control over the headlamp according to the information derived from
5 said map information acquiring means.

7. A vehicle headlamp apparatus as claimed in claim 1, wherein when worsening of weather is detected, said light distribution control means performs light distribution control
10 over the headlamp according to the information derived from said map information acquiring means.

8. A vehicle headlamp apparatus as claimed in claim 1, further comprising steering information acquiring means for
15 acquiring steering information to supply said light distribution control means.

9. A vehicle headlamp apparatus as claimed in claim 1, wherein said light distribution control means controls an optical
20 axis of the head lamp in a vertical direction to vary the light distribution thereof.

10. A vehicle headlamp apparatus as claimed in claim 1, wherein said light distribution control means controls an infrared
25 lamp that emits a near infrared ray.

11. A vehicle headlamp apparatus as claimed in claim 1,

wherein said light distribution control means controls an optical axis of the head lamp in a lateral direction to vary the light distribution thereof.

5 **A3** 12. A vehicle headlamp apparatus as claimed in claim 1, wherein said light distribution control means controls an optical axis of the head lamp to direct downward so as to illuminate an area ahead of the own vehicle.

10 13. A vehicle headlamp apparatus as claimed in claim 1, wherein said light distribution control means controls to irradiate a lane mark near the own vehicle.

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